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Microsoft's New 'Normal' Irritates Enterprise IT 7

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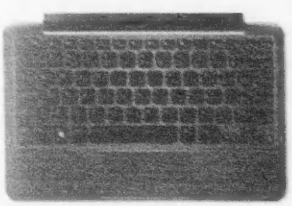

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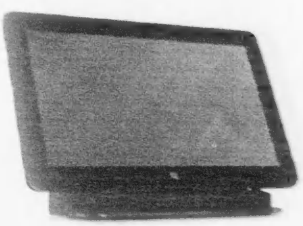

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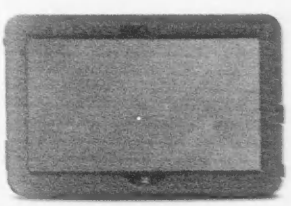

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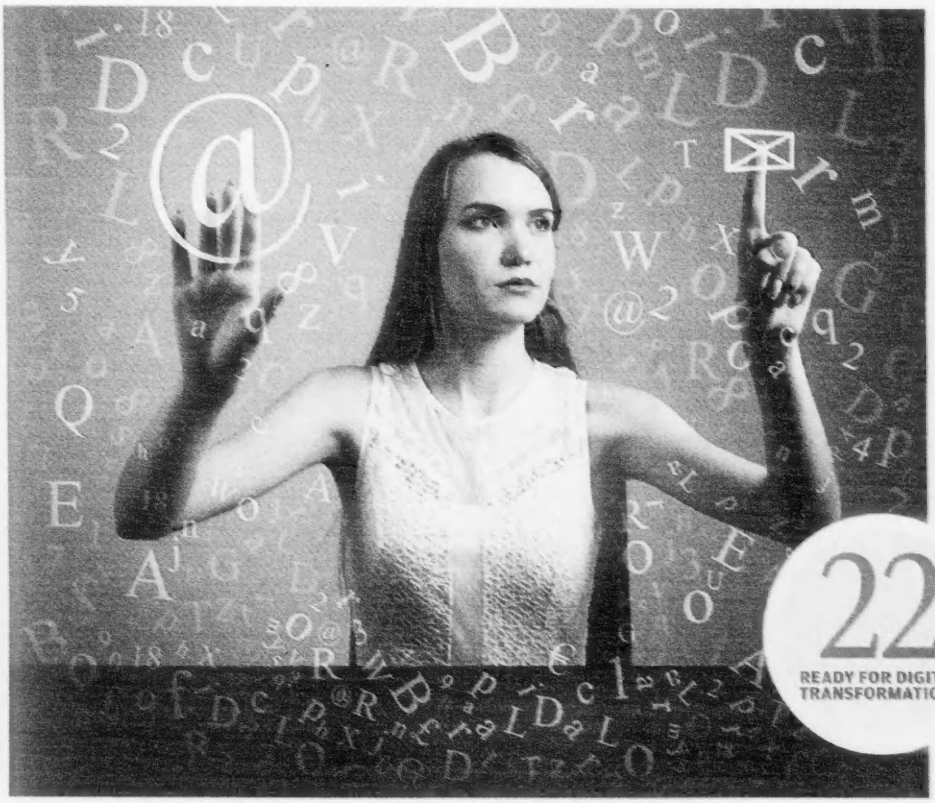

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THINKSTOCK

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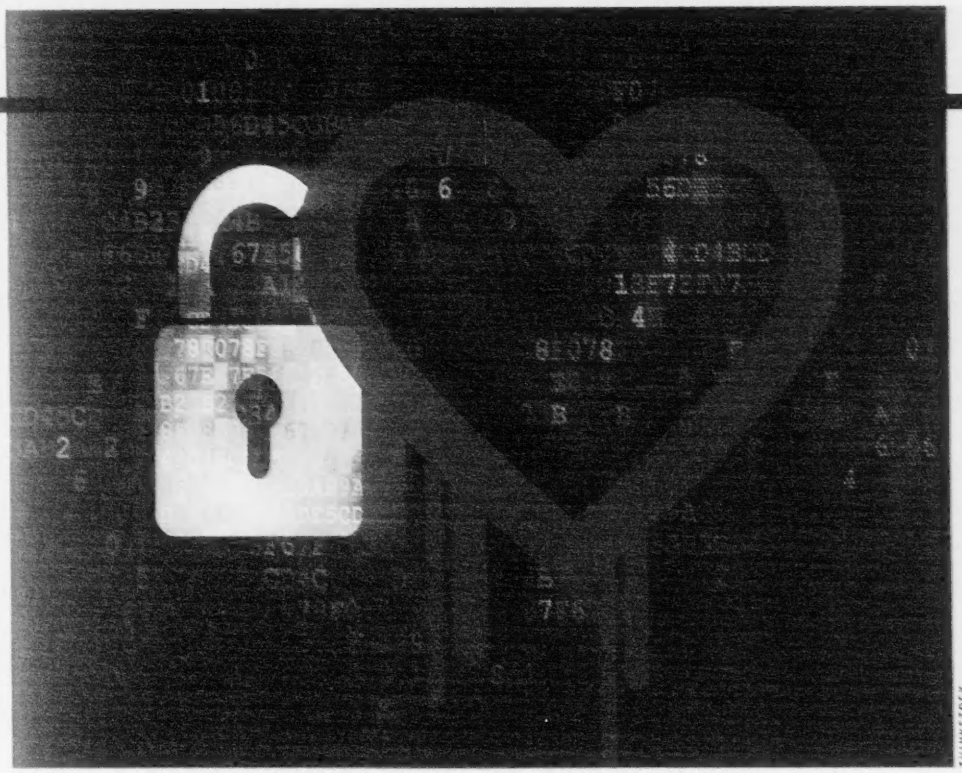
Heads Up



THINKSTOCK

SECURITY

Heartbleed's Boon: Stronger Passwords

IN AN IRONIC TWIST, the security vulnerability known as Heartbleed may have given rise to improved Internet security.

With news stories about Heartbleed causing consternation among Internet users everywhere, people who previously may not have thought twice about their online passwords started changing them last month. Some even enabled two-factor authentication, which forces users to provide two separate pieces of information for access.

A bug in OpenSSL that was introduced in a new version of that software at the end of 2011, Heartbleed allowed Internet attackers — under some circumstances — to steal data from the memory of a server in 64KB chunks. That data could include passwords or encryption keys.

Anecdotal evidence indicates that people are taking the threat seriously.

As reports of Heartbleed's existence spread through the media, Facebook saw a spike in password resets and enrollment in Login Approvals, the social networking site's version of two-factor authentication, according to a Facebook spokesman.

And software developer AgileBits reports that its password management app, 1Password, moved into the top 10 most popular offerings in Apple's App Store shortly after the news about Heartbleed broke.

Being less lax about passwords isn't revolutionary, but it's progress.

"Sometimes it takes a disaster to get people to do something they should have been doing all along," said Steve Pate, chief architect at HyTrust, a provider of cloud security systems.

– Zach Miners, IDG News Service

ENTERPRISE APPS

San Diego's SAP System Triples Some Workloads

San Diego's $50 million SAP system has tripled employees' workloads for some tasks, but the city has also failed to devote enough attention to training, according to a consultant's report.

The city's purchasing and contracting professionals can't easily generate crucial reports from the SAP system, and they've become "overwhelmed by the exhaustive and mainly transactional workload," according to the report by Huron Consulting Group.

"Most P&C individuals interviewed are frustrated by the time-consuming and 'click-intensive' requisition process," the report adds. It can take anywhere from 20 minutes to a few days to process a requisition depending on how many line items are required.

The SAP system's primary purpose is to help the finance department, and it's working well in that regard, according to an official municipal document.

Some steps are being taken to fix the problems plaguing purchasing and contracting tasks, including the adoption of "deep-dive" training to help people get more comfortable with the system, according to the report.

SAP spokesman Andy Kendzie declined to comment on the specifics of San Diego's situation. However, "SAP's goal is to make every customer a best-run operation," he said via email. "Our systems work exactly as designed and we want to help customers use them to their fullest potential."

– CHRIS KANARACUS, IDG NEWS SERVICE

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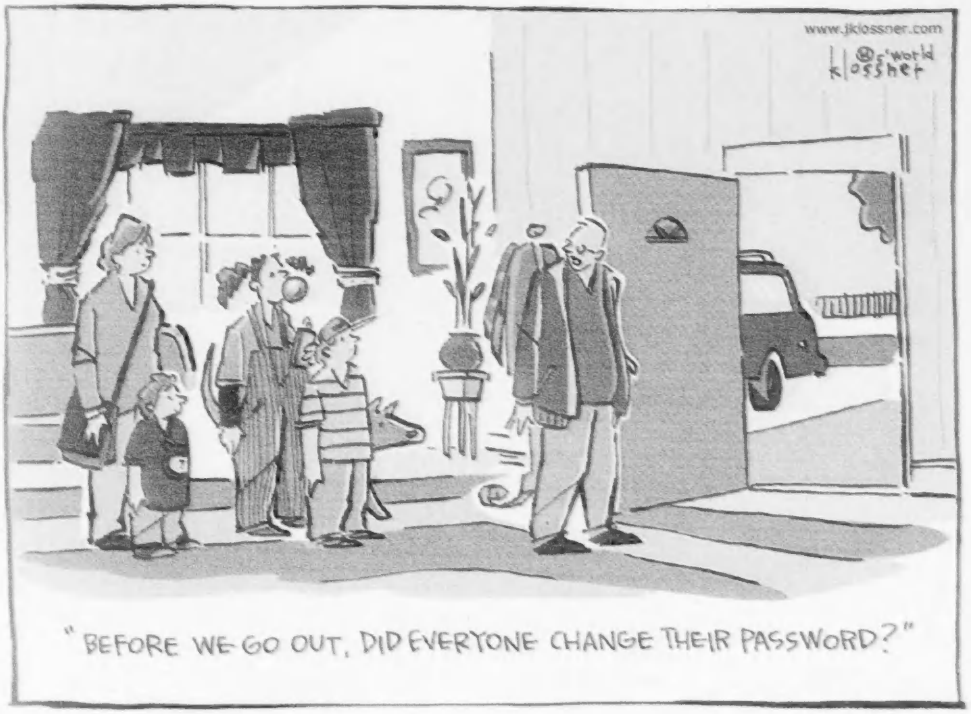
BETWEEN THE LINES
By John Klossner



DATA CENTER

IT Execs Expect Big Things From Solar

CHALLENGED TO IMAGINE the data center of 2025, IT managers offered up some optimistic, even surprising, predictions.

Emerson Network Power polled about 800 data center managers, and the results suggest there will be major changes on three fronts:

- **Solar power.** Data center managers expect nearly 25% of their power to come from solar energy by 2025. Today, solar accounts for about 1% of a data center's energy supply.
- **The cloud.** Nearly three quarters of the respondents said that at least 60% of computing will be cloud-based in 10 years.
- **Data center size.** Thirty percent of the respondents predicted that data centers will be half the size of today's facilities, while 18% said they'll be one-fifth the size and 10% said one-tenth the size.

Alternative energy sources — including fuel cells and solar, wind, geothermal and tidal energy — account for no more than 10% of a data center's power these days. But in 10 years, those renewables will provide 50% of a data center's power, respondents said.

That optimism about renewable energy indicates that managers are imagining "some fairly large technical breakthroughs that are going to happen in the renewable space," said Steve Hassell, president of data center solutions for Emerson Network Power.

Power densities of 6.4 kilowatt-hours, which is near the average for a server rack, require 8 square meters of solar panels — even more when cooling is considered.

"We haven't seen a dramatic increase in rack density," said Hassell. But the respondents expect that will change, with 26% predicting power densities of 80kwh in 10 years, and another 15% envisioning 100kwh densities.

Respondents were also optimistic about the prospects for self-healing, self-optimizing data centers, which may come into being with software-defined data centers and the use of more advanced infrastructure management tools.

– *Patrick Thibodeau*

Micro Burst

STORAGE

Sony has developed magnetic tape technology that offers

74 times

the density of today's standard tapes.

SOURCE: SONY

OPERATING SYSTEMS

Oracle Adds OpenStack Cloud Tools to Solaris

Oracle once slammed the cloud as hype, but apparently it's backing off of that stance, having introduced a Solaris update that includes the OpenStack cloud management platform.

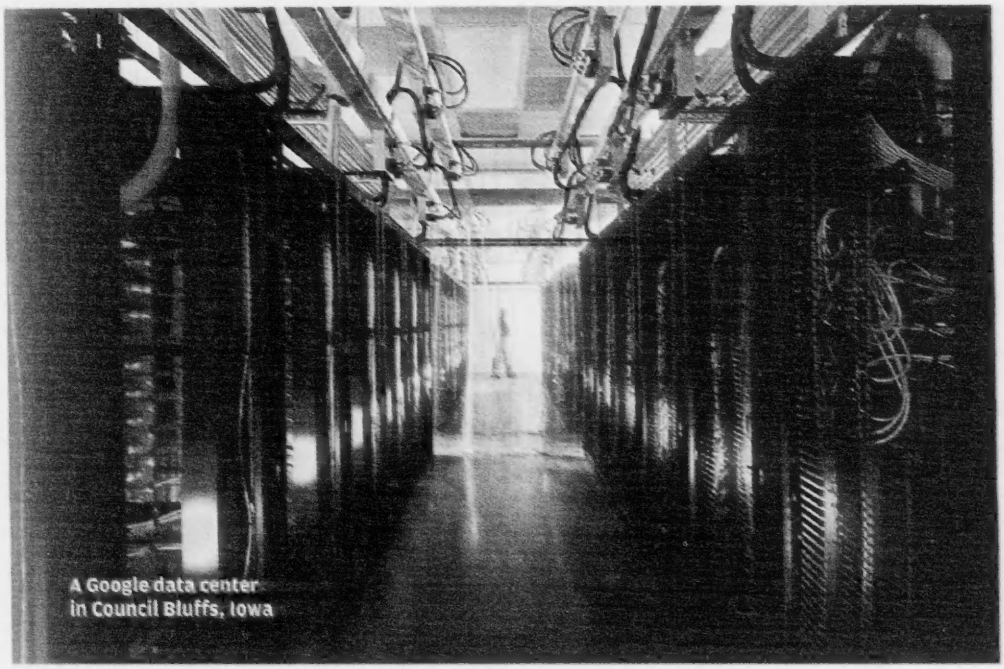
Designed to make life easier for Oracle customers running mixed cloud environments, Solaris 11.2 integrates OpenStack components, including the Horizon dashboard, the Nova compute module, the Neutron network module and the Cinder block-storage module.

"We're transitioning Solaris from a traditional OS to a full-fledged cloud platform," said Markus Flierl, Oracle's vice president of software development for Solaris, adding that Solaris 11.2 is due to be generally available this summer.

OpenStack is a collection of open-source components that can be used to set up on-demand compute services on virtualized equipment, including infrastructure as a service. It provides a "single pane of glass" for managing multiple hypervisors.

The addition of OpenStack support is part of a broad update to Solaris, and it's a big step for Oracle, which has not put much emphasis on interoperability.

– JAMES NICCOLAI, IDG NEWS SERVICE



A Google data center in Council Bluffs, Iowa

IBM Battles Intel in Hyperscale Market

The company gets a shot in the arm from Google as it starts licensing its Power8 chips to third parties in a bid to win more business. **By James Niccolai**

IBM IS INCHING AHEAD with efforts to expand sales of its Power server chips and challenge Intel in the market for hyperscale data centers run by the likes of Google and Facebook.

The plan got a big shot in the arm late last month when Google showed off its first home-built server board based on IBM's upcoming Power8 processor. Though the Google board is a test vehicle, it's a good vote of confidence for IBM.

Over the past decade, Intel's increasingly powerful Xeon chips have been eating away at the market share of IBM's Power products. IBM's first move in its counterattack was to license its Power design to other server makers.

IBM needs partners because providers of computing services aren't interested in IBM's own Power servers, which come bundled with costly software and services.

"Scale-out service providers aren't going to buy from IBM," said Patrick Moorhead, an analyst at Moor Insights & Strategy. "No matter how good the technology is, they'll want to buy it from someone with a different cost model."

Power-based IBM Unix servers today mostly run enterprise software from IBM, SAP and Oracle. With that market in decline, IBM is opting for a strategy that involves third-party Power-based machines running Web and analytics applications in the large data centers of major IT service providers.

Service providers increasingly want no-frills "white box" systems — the opposite of IBM's traditional offerings — as well as a say in how they are designed.

To get its plan started, IBM last summer formed the OpenPower Foundation, a group that now has 26 members — mostly vendors.

Though the process of signing up third parties to build Power-based systems has been slow — China's Suzhou PowerCore is the first licensee — some members of the OpenPower Foundation have built tools designed to work with the IBM chip.

For instance, Nvidia said its graphics processors will soon be able to act as accelerators in Power servers. Tyan, a motherboard maker, has showed off the first reference design for a white-box Power server. And component vendors Mellanox, Xilinx and Altera have disclosed new products featuring Power chips.

And Google has worked with IBM and Canonical, maker of the Ubuntu open-source platform, to develop open-source tools and firmware for Power systems.

"We're going through a pretty detailed investigation of the Power architecture," said Gordon MacKean, a Google engineering director and chairman of the OpenPower Foundation.

But IBM needs more OEM partners. "They're definitely still in the crawl stage," Moorhead said.

IBM's new business model mimics that of ARM, which has been wildly successful in designing processors for smartphones and tablets and licensing them to manufacturers.

Intel isn't standing still. Its new E7 v2 processors offer triple the memory capacity of their predecessors, a quality that companies like Google covet.

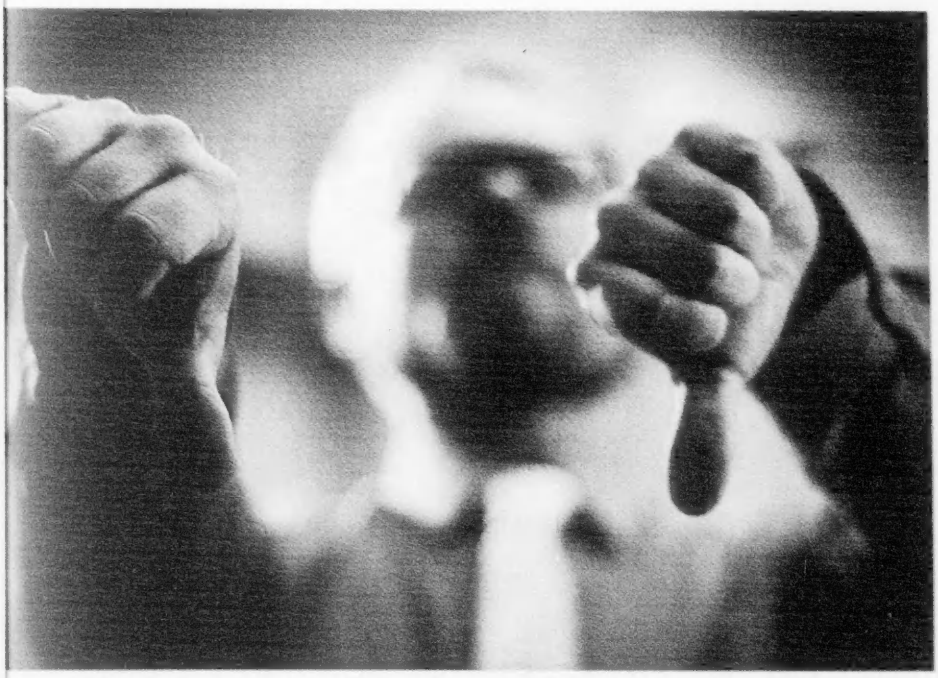
IBM is determined that Power technology will have a bigger role to play, but it's aware that there's a lot of work to do.

"We're taking that technology used to build computers [in big cabinets and] decomposing it into its elements," said Brad McCredie, IBM's vice president of Power development. "We're making it available to people to innovate." ◆

Niccolai *is a reporter for the IDG News Service.*

> **"Scale-out service providers aren't going to buy from IBM.**
>
> — PATRICK MOORHEAD, ANALYST, MOOR INSIGHTS & STRATEGY

GOOGLE



Microsoft's New 'Normal' Irritates IT

Experts say the more Microsoft pushes faster-paced Windows updates, the more enterprises will resist. By Gregg Keizer

MICROSOFT'S NEW PROCESS for updating Windows — which features a faster-paced tempo that requires customers to apply releases within weeks — could be a first step in moving the operating system to a services-style model.

It's also a strategy likely to face years of resistance from enterprise IT departments as they struggle to adapt.

"Microsoft is thinking of Windows as more of a service," said Wes Miller, an analyst with Directions on Microsoft. "That's what they'd like us to get to."

The new "normal" will involve frequent security-related and non-security-related fixes, new features and even user interface changes.

"Microsoft would certainly like [accelerated updates] and it will try to make it so," said Michael Silver, an analyst at Gartner.

The IT outcry began with Microsoft's initial demand that customers apply two updates released last month within five weeks or be cut off from all future updates, including monthly security patches. Microsoft eventually extended the deadline for businesses to Aug. 12.

Even with the extension, enterprises must deploy updates in one-sixth the time Microsoft required in the past, when users had at least 24 months.

IT executives say the accelerated pace gives them little time to run deployment processes they've honed for decades — processes that include deep testing and real-world evaluation.

"It does create a problem when businesses are buying desktops or deploying tablets and trying to have a standard to set to," said Miller. "It's hard to do that when the wheels are constantly in motion and the pieces on the board are always moving."

Microsoft has repeatedly argued that its decision to adopt a faster pace stemmed from "customer feedback."

The reality is more complicated. Microsoft might not have had to issue Windows 8.1 Update, or perhaps even Windows 8.1, if it had paid attention to critics' warnings that Windows 8 was too radical a redesign for users to swallow.

"It's a weird Catch-22," Miller said. On one hand, Microsoft is advocating rapid acceptance of operating system updates to bring Windows into the 21st century, where mobile OS updates are frequent for competitive-advantage reasons and are easily accepted by most users. On the other, enterprises dislike change and can point to flaws in Microsoft's current updating processes.

Analysts expect retrenchment by many corporate users who have standardized on Windows 7. Companies will likely hold onto Windows 7 longer than they might have sans the successor's accelerated pace.

Silver said he doesn't expect Microsoft to expand the new "normal" to incorporate Windows 7.

If Microsoft did change Windows 7's updating process, the uproar would be enormous, analysts agree. Therein lies Microsoft's between-a-rock-and-a-hard-place situation: It wants to change how it does business, but the more it does, the harder enterprises dig in their heels.

Miller noted that many of the moves Microsoft has made to quell the unrest generated by Windows 8 threaten the company's efforts to drag customers into the future. "Things like bringing back the Start menu are in fact a bad story for Microsoft," he said.

The faster tempo also threatens Microsoft's push to get customers into cloud-based services, Miller asserted. "If people are uncomfortable with software as a service [through rapid updates], they're going to be even more uncomfortable with the cloud." ◆

> "Microsoft is thinking of Windows as more of a service."
>
> — WES MILLER, ANALYST, DIRECTIONS ON MICROSOFT

THINKSTOCK

THE Grill

Edward W. Marx

In a life-and-death industry, quality and testing are high on this CIO's priority list.

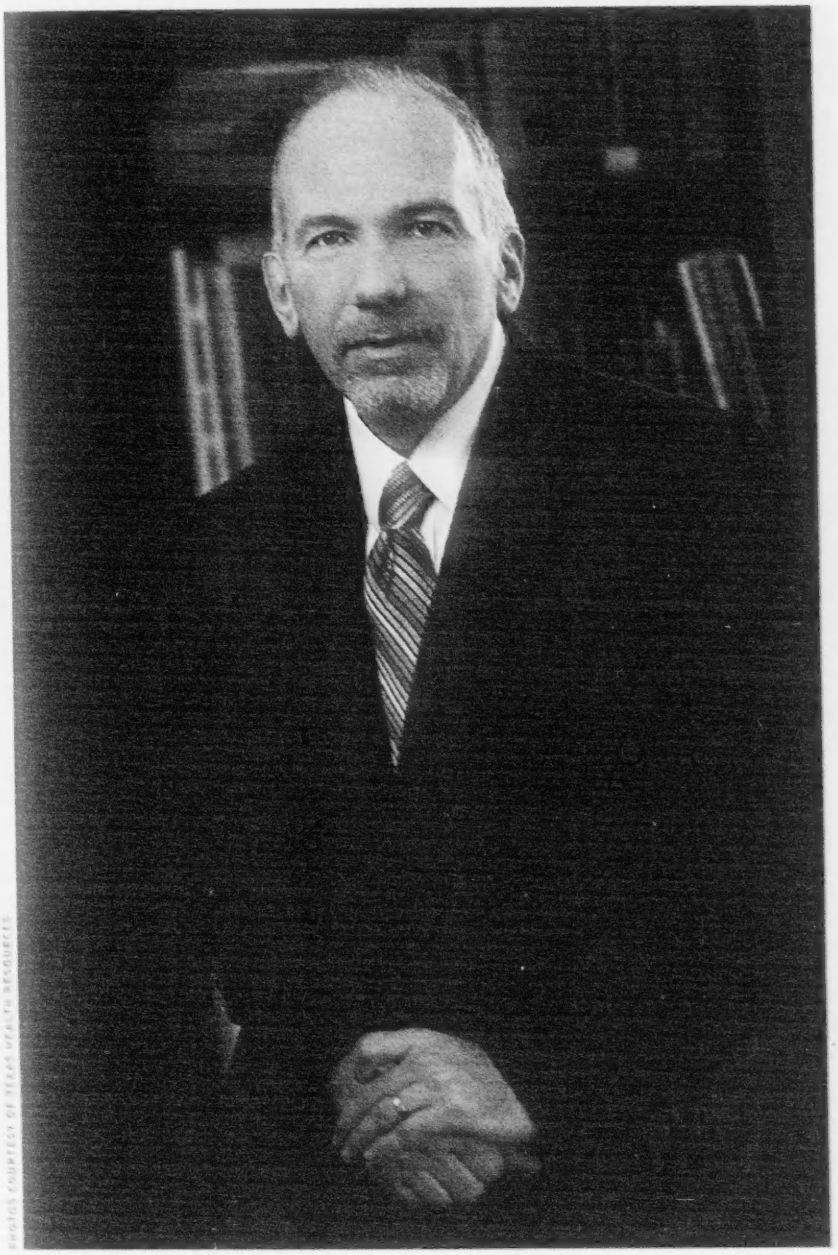
Family: Married for 28 years, two adult children and one grandchild.

Hobbies: Dancing Argentine tango with his wife, competing in Ironman triathlons and participating as a member of the 2014 USA Duathlon team, which competes at the world championships this month in Spain.

Goal: To climb all of the Seven Summits. He has already climbed Kilimanjaro in Tanzania, Elbrus in Russia and Aconcagua in Argentina.

Current reading list: *The Blessed Life*, by Robert Morris, *Destiny Defied*, by J.A. Marx (Edward's wife), and *Into Thin Air*, by Jon Krakauer.

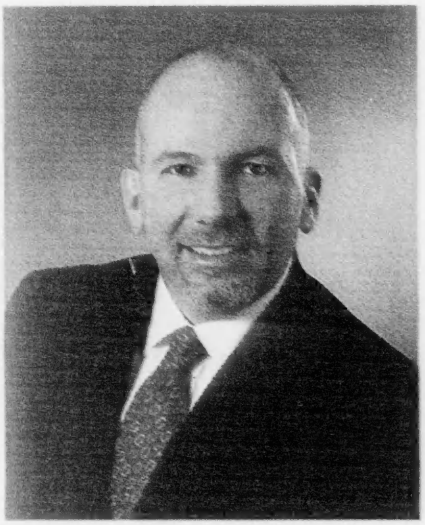
Playlist: Techno-tango and '80s new wave



PHOTOS COURTESY OF TEXAS HEALTH RESOURCES

EDWARD MARX *focuses on technology's power to transform the healthcare industry. As senior vice president and CIO at Texas Health Resources in Arlington, Marx has led numerous IT-enabled transformative initiatives aimed at improving patient health. Those projects include using social media to connect with the local community and implementing BI tools to deliver advanced clinical care. "Everyone agrees there's a financial benefit, but at the end of the day, I know what we're doing is making the difference in someone's life. I can see by leveraging IT you can make a demonstrative difference," he says. In January, the College of Healthcare Information Management Executives and HIMSS, a nonprofit group focused on healthcare IT, selected Marx as the recipient of the 2013 John E. Gall Jr. CIO of the Year Award.*

What do you think earned you recognition as CIO of the Year? My leadership and my transformation methodology and disruption of the status quo. I stress leadership a lot more than technology. I talk to people about wising up and claiming their title, because for most of us, that's senior vice president before chief information officer. So



> **Why go to the hospital** if we can give them the data wherever they are so they can take immediate action?

really lean on that senior vice president title. We do a lot of transformation here leveraging technology. And we do a lot of disruption here.

How do you measure IT's value in your organization? We do measure traditional financial ROI, just like any other company. We're very judicious about that. But what stokes my fire is how do we measure clinical quality and patient safety and how, therefore, do we improve it. We have all these technology tools that we could leverage to improve quality and safety. Our performance is based on the measures of those. One example: One of the biggest killers of patients that come into American hospitals today is pulmonary thromboembolism, or PTE. So we did some innovation and we reduced the incidence of PTE by 25%. We know because we measure this stuff. In a traditional hospital, if you think a patient is at risk for PTE, you put them on a certain protocol — elevate their legs or take a particular drug. But in a paper process, you might not realize a patient is at risk. Because we're automated with electronic health records, we built that into our order set. It's that sort of innovation that really enabled this transformation.

What is your biggest IT initiative right now? We don't have any IT initiatives. We have business initiatives that require IT, and one of those is population health. We're more about well-being and we want to engage the communities before they need Texas Health. We're engaging our community in many ways, and population health requires a lot of IT. Another area is patient engagement. That goes back to population health, but it's about mobility and connected health. Not too many people want to come to the hospital, so is there a way to deliver healthcare at a lower cost that's not in the hospital? We call it connected health. You should be able to do a lot more today with your local provider on your smartphone than you do. And we're trying to engage the clinician in the same way. Why go to the hospital if we can give them the data wherever they are so they can take immediate action? The third area is predictive analytics. We should be able to take this data and make predictions around risks so I could get a call or text from my personal health record that says, "Come in in 30 days for another lab workout" or "Keep exercising."

What's next for your IT department? I think there are three areas. [One is] optimization. We implemented a lot of technology and we did pretty well, but as you get more experience and add new features, you have to make sure you optimize your investment. We come back through with another team after we've been doing it a couple of years and see what more we could be doing or what new features we could take advantage of. Another area is BI. We're going to get to prescriptive analytics, get very customized to the individual. And then the third area is the whole concept of innovation. We have to constantly challenge ourselves on how we can come up with a better way of doing things.

What can IT leaders in other industries learn from you and other healthcare CIOs? Once a year, I take my leadership team and I pick another company and we spend the entire day together. I've done this with Kimberly-Clark, RadioShack, Pier 1, 7-Eleven. And we learn from each other. I think what they can learn from healthcare IT is our focus on quality and testing. If we make a mistake, it can cost someone their life. In other [industries], it might mean cost overruns. So we take extraordinary steps to make sure there's high quality and lots of testing.

What does it take today for IT departments to ensure high customer satisfaction? I have three formulas. You have to have as much eye-to-eye communication as possible. They need to see me rounding with doctors and nurses on the floor, so they know I understand what they're doing. Another way is face to face. You have to know the strategy, where they want to go. And the final is peer to peer. Physician satisfaction is a key indicator to us, and our highest area of satisfaction for the physicians was IT at 94%. We're above 80% overall with everyone, and that's world-class according to Gartner.

What do you do as a CIO to develop leaders? We have a leadership academy. We take eight students a year, they get mentored by me or one of my direct reports and they learn business leadership. We're going to graduate our second class soon. We take advantage of Texas Health University, that's the typical HR-run training program. They do a great job here. And in addition to that, I bring in other organizations to help us because I believe in leadership development so badly that I'm willing to invest. And I push people hard to present. We do a lot of presentations around the country. It improves our brand, it helps our employees and there's nothing like being asked to teach to really solidify it in you as a leader.

— Interview by Computerworld *contributing writer* **Mary K. Pratt** *(marykpratt@verizon.net)*

BART PERKINS

A Project Staffing Worst Practice

With IT, disregarding the value of expertise and experience is ludicrous.

GATHERING BEST PRACTICES? Here's a worst practice: using the Defense Department's Lowest Price Technically Acceptable (LPTA) procurement approach to evaluate RFPs for systems integration, IT strategy, ERP installation other high-skill efforts.

LPTA was originally designed to purchase items with precisely defined technical requirements, such as office supplies and raw materials. Chosen suppliers met the minimum requirements at the lowest price. But with budgets squeezed ever tighter, LPTA is now being used to procure IT professional services, where disregarding the value of expertise and experience is ludicrous. Predictably suboptimal results stem from flaws such as these:

- **Murky minimum technical requirements.** When project-specific requirements aren't defined before the RFP is offered, the only specified requirements are the project team's education, experience, certifications, etc. Worse, LPTA procurement rules leave no room for interpretation. When a PMP-certified project manager is required, project managers who have successfully implemented a virtually identical project but lack certification are excluded from consideration. And nonprice criteria are evaluated solely as pass/fail, without credit for exceeding specifications.
- **Hiring the cheapest people, not the best team.** When the sole RFP focus is cost, suppliers can't afford to assemble teams with an appropriate blend of skills and experience. Projects staffed via LPTA usually end up with the least expensive people meeting minimum levels of education, security clearance and so on. Such people are likely to have trouble with unexpected or complex problems.
- **No room for creativity.** LPTA-based RFPs are very proscriptive. Suppliers that offer nonstandard approaches to achieving project objectives are rarely able to meet unbending technical requirements. When a creative supplier comes up with a better solution midproject, LPTA contracting rules necessitate an elaborate change process.
- **Expensive overruns.** LPTA contracts place less emphasis on project requirements, metrics, deliverables and outcomes than do traditional contracts. That makes suppliers less accountable, so they can easily justify expensive change orders. LPTA ignores that a smaller, more experienced team, though better paid, can often deliver at lower cost. Fred Brooks' *The Mythical Man-Month* observed that the best programmers are often 10 times more productive than the worst ones.
- **Disappearing suppliers.** Squeezed by LPTA restrictions, many government contractors have cut training, support and facilities to the bone. Some have eliminated nearly all employees and hire independent contractors for a project's duration and no longer. Others have exited the business entirely. Deputy Defense Secretary Ash Carter recently acknowledged that suppliers need "profits and margins to be successful," and if suppliers disappear, the DOD will need to pay higher rates or rehire employees.

The government must learn that IT professional services are not pencils, and agencies should stop attempting to hire IT professionals who asymptotically approach minimum requirements. The private sector, usually more astute, must fight against the insanity of using LPTA for IT professional service RFPs. Comprehensive IT systems involving major business process changes are complex and require skilled, high-functioning teams. Ignore this, and you will get only what you pay for — and exactly what you deserve. ◆

Bart Perkins is managing partner at Louisville, Ky.-based Leverage Partners, which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.


Y.

COVER STORY

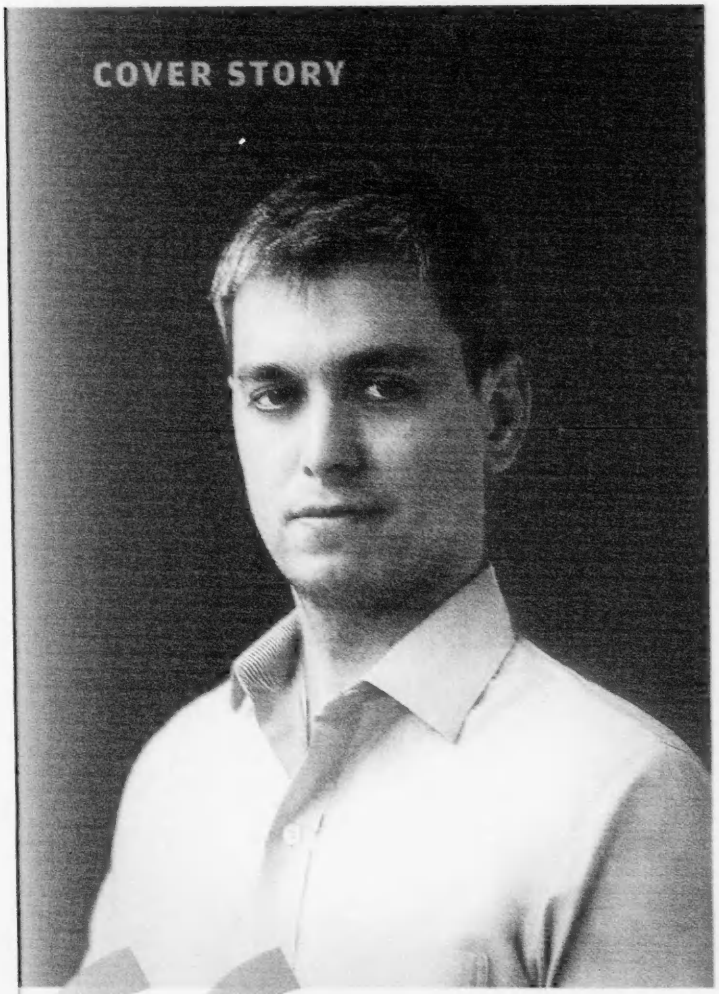
Let's Talk *about* [Risk]

No one is having an honest conversation about risk – and that's putting IT between a rock and a hard place. Here are seven ways to change the dialogue.

BY MINDA ZETLIN

IT'S A FAMILIAR COMPLAINT: Executives from a business department learn about a new, often cloud-based product and they want to try it. Only they can't, because IT has decreed that this wonderful new product creates too much risk. The frustrated business execs gripe that IT is standing in the way of progress. As one business executive said, IT is "where dreams go to die."

The problem might not lie in some stubborn dislike by technology professionals for innovative new products. The problem, CIOs and other experts agree, is that most organizations don't have a realistic, balanced or mature system for evaluating and making decisions about technology risk. Especially the risk that always comes with implementing something new.



Inevitably, something will go wrong because you're a goalie and sometimes people will score. What we do instead is talk about relative risk.

MATT POWELL, CIO, KIRSHENBAUM BOND SENECAL + PARTNERS

"Somebody, typically in a line of business, has some SaaS product they want to use, and they provide a business case for it: 'Here's all the good stuff that can result from the use of this. It'll make my numbers. I can access it from anywhere,'" says Jay Heiser, an analyst at Gartner.

At that point, IT is asked to determine whether the software in question is safe to use. "Then starts a farcical attempt to prevent something bad from happening," says Heiser. Ensuring complete indemnification for any losses suffered in the event of a breach likely means inserting provisions into the vendor's standard contract. "These are cookie-cutter products; the company has 30,000 customers. They're not going to negotiate contracts," he says.

Next come questions about the cloud provider's security practices, but here again, Heiser says, it's difficult or impossible to construct a questionnaire that will fully determine that the provider will keep data secure. A site visit might be helpful, but the sheer volume of customers will make it impossible for the provider to welcome most of them. And even when you are standing at a provider's facility looking straight at its servers, that doesn't give you access to the person who wrote the code.

In short, there is no way to guarantee security, especially that of a cloud-based product, Heiser says. And therefore, IT professionals tend to take the simplest path and decline to give their approval, which in turn earns them a reputation as dream-killers. It's a setup that guarantees frustration on all sides, and one that's more than ripe for adjustment.

But changing it requires seriously rethinking how businesses work with IT to make technological decisions. That won't be easy, but here are some places to start.

1 LET CIOs OFF THE HOT SEAT

Talk to any CIO long enough on the subject of technology risk, and one company name is likely to come up: Target. The retailer suffered a widely publicized data breach compromising a total of 110 million credit cards in December and January — a number that's equivalent to more than one-third of the U.S. population, assuming all the cards belonged to different people. As the dust settled and lawsuits were filed, no one was surprised when Target CIO Beth Jacobs tendered her resignation.

Jacobs had been on the job about six years, putting her right at the average CIO tenure according to *CIO* magazine's 2014 State of the CIO survey. That's a fact worth noting because behind it lies a darker truth: Most CIOs assume they're always one big tech failure away from losing their jobs. "I don't know if she did a good job or not, but she got fired," Heiser says. "In practice, if something breaks, they'll go looking for a scapegoat." Because CIOs face that reality, he adds, it's easy to see why most of them are motivated to make "extremely conservative decisions."

"We have encrypted our systems and we audit stuff regularly," one CIO confides. "We've done our absolute best to make sure there is never a breach. Still, just like the Target CIO, if I stay here long enough, there will be a situation that I get blamed for."

2 STOP ASKING THE WRONG QUESTIONS

"I get a lot of questions from Gartner clients who want a definitive read as to whether some cloud system is 'secure' or not," Heiser says. "It's the wrong answer and the wrong question."

To begin with, there's no such thing as a perfectly secure system. "Inevitably, something will go wrong because you're a goalie and sometimes people will score," says Matt Powell, CIO at Kirshenbaum Bond Senecal + Partners, an advertising agency headquartered in New York. "What we do instead is talk about relative risk." Powell says he has read that the National Security Agency's standing posture is that all its systems have been compromised 100% of the time. If a government agency with legendary technical proficiency makes that assumption, he suggests, everyone else should too. Once you adopt that mindset, he says, "it's a matter of how much is at risk, and for how long."

Unfortunately, Heiser says, "there's no way to conceptualize risk." Even though many organizations, including Gartner, have tried to put a finger on risk profiles and scenarios, "there's no good way to quantify that," he says. "If you could tell the business

there's a 5% chance in any year that your competitor could gain access to your data through this service and that was backed up by statistics, you could base a decision around that, but it's still going to be an emotional decision."

START WEIGHING RISK VS. REWARD

There's no reasonable way to make a good decision if all you're looking at are the bad things that can happen if a new system leads to a data breach or malfunction. A wise approach to IT management requires weighing that increased risk against the business benefits of adopting a new technology, as well as the business risk of *not* adopting it and losing an opportunity or a competitive edge.

How can CIOs, without a big-picture view of the organization and its strategy, make judgments like these? They'd better get that big-picture view, advises Frank Petersmark, CIO advocate at management consultancy X by 2 in Farmington Hills, Mich., and former CIO at Amerisure Insurance, a 102-year-old property and casualty company with more than $600 million in direct premiums, also located in Farmington Hills. "You have to put technology risks into business terms," he says. "If there's a data breach and customers' information is out there, how will they feel about it? How will it impact sales or profitability?"

It's part of the new CIO role. "The CIO has evolved from CIO 1.0, techie person in the room where the lights are blinking and we don't know what they do," he says. "Now we're up to, I think, CIO 6.0, moving toward a full business partner with executive colleagues. You're expected to know the business domain of your organization as well as anyone who works there. And the reason is obvious. Technology is such an enabler or disabler now, that's the kind of IT leader they want."

Letting THE Law DECIDE

WHEN IT COMES to reducing technology risk, sometimes the law can be your best friend. For CIOs in the healthcare field, for example, the Health Insurance Portability and Accountability Act (HIPAA) can serve as a guide to what is and isn't acceptable risk; it can also provide a definitive argument for taking a strong security stance.

"HIPAA dominates everything we do," says Jason Thomas, CIO at Green Clinic, an all-physician-owned facility with six satellite locations headquartered in Ruston, La. "We use it to look at all decisions: Where is this coming from? Is patient data protected? Are we encrypting data before we send it to someone else? If we send it, do they have a business agreement with us and are they HIPAA-compliant?"

Deciding what does and doesn't qualify as "HIPAA-compliant" isn't as straightforward as one might think. "HIPAA has a lot of requirements, but they're very vague," Thomas says. "It was written almost 10 years ago and nobody really knows what it says. That's led a lot of people to be either very lax or very stringent where HIPAA is concerned. Some don't worry about encryption or auditing their access — their interpretation is that it doesn't apply."

Green Clinic comes down on the stringent end of the spectrum, he says, and that has occasionally caused friction with both vendors and the doctors who want to buy their products. "There are a lot of sales reps out there, and they're frankly not always on our side," he says.

For example, Green Clinic's IT team insists on using encryption for all patient data. "We have a facility that does X-rays, and we had a vendor tell us they would set up their workstation, install their software, and that's how it needs to stay," Thomas says. From his point of view, having a device on-site handling patient data in a way he couldn't manage or encrypt was unacceptable. "I can't just have a workstation dropped at my door and everything's hunky-dory," he says.

Using HIPAA to insist on higher security standards has worked out for Thomas and his team. "I've had some vendors who've done it their way for 20 years keel over and do it the way we wanted," he says.

HIPAA works as a big stick only for those industries that fall within its domain. But nearly every industry has state or federal regulators it must answer to, and beyond that, a regime of contractual agreements. For instance, any organization that takes credit card payments directly must comply with the Payment Card Industry Data Security Standard (PCI DSS).

Then there are contracts with business partners and clients. For example, at ad agency Kirshenbaum Bond Senecal + Partners, CIO Matt Powell can refer to client contracts when he needs to rein in employees' enthusiasm for new cloud-based products. When the creative team recently sought to start using a cloud-based imaging system that integrates with Adobe Photoshop, Powell said no because the new software would give the provider access to client data. "If it moves out of our ecosystem, it creates a contractual issue," he says. Worse, some cloud providers have terms of service that give them the right to reuse any uploaded data, something that's clearly out of bounds for anything belonging to clients.

In such situations, Powell may work to find a solution by, for instance, obtaining a written exception to the contract from the agency client. But that works only some of the time. "If the organization or technology provider hasn't structured their product in a way that provides the appropriate legal and technical protection, it becomes difficult to work with that product," he says.

When that happens, the internal conversation can be difficult, but Powell says it's easy to make his point: "My response is, 'Do you like your paycheck? It comes from clients writing us checks, and if a client fires us for being in breach of contract, it becomes harder to pay.'"

– MINDA ZETLIN

ESTABLISH A TECHNOLOGY RISK PROFILE

Your corporate leaders, working with your company's financial advisers, have undoubtedly determined what their "risk appetite" is when it comes to investments — how much loss they are willing to risk in pursuit of financial gain. They've likely done the same for their personal investments.

It's time to look at technology through the same lens. Petersmark suggests that IT could go to the C suite and say, "We've done some thinking about it and we can make a bigger splash in the marketplace if we are a little more open to risk. And we'd like you, Mr. or Ms. CEO, to help us think about it and give us a place on the continuum between market impact and business gain to risk of business loss."

A smart organization would take this approach, he says, "rather than just leaving it to the CIO to be like Caesar with the gladiators, always pointing thumbs up or thumbs down."

LEARN TO LIVE WITH NUANCE

"If you want to embrace the cloud, you have to live with ambiguity," but it takes a mature organization to do that, Heiser says. "If the people making the decision truly understand that it's a nuanced decision and it's perfectly all right to run an acceptable level of risk, they can make good decisions. The organization needs to have a healthy culture that can handle an ambiguous decision. You can't have the CIO thinking, 'If it breaks, it will be my fault.'"

You should also have a nuanced view of the bad events that could occur if something goes wrong, Heiser adds. Target's experience notwithstanding, not all breaches are created equal. "Most security failures are not noticed and life goes on," he says.

Still, some IT leaders, careful of safeguarding both their companies' networks and their own jobs, try to get as close to "secure" as they possibly can. "Some technologists consider the concept of 'acceptable risk' to be an oxymoron. They're perfectionists," Heiser notes. At the other end of the spectrum are what he calls "fig leafers" — people who figure that the standard security provided is likely to be good enough.

"The successful organization manages that conflict," he says. "The answer is somewhere between these extremes."

START SHARING BOTH CREDIT AND BLAME

One profound problem with the way technological risk is often managed is that credit for the good outcomes and the bad outcomes isn't fairly apportioned. If IT approves a new cloud service that a business department wants, and the service increases sales or otherwise benefits the bottom line, then the business department that's using it will likely get the kudos and perhaps financial rewards as well. On the other hand, if the new system leads to a security failure or other malfunction, IT will get all of the blame.

With nothing to gain and a lot to lose, IT leaders might have little incentive to explore the risks and benefits of a new product, especially since they're running in place already, trying to keep up with the rapid pace of technological change.

"When you're a CIO, the reaction can be 'wait a minute, I have zero minutes to think about this now, I'm just going to say no,'" Petersmark says. "CIOs get conditioned to doing that."

Ideally, an IT department that evaluated a new technology and determined it was a good idea should reap some reward when that new technology has a positive impact on the bottom line. More important, IT shouldn't have to stand in the spotlight alone if something goes wrong. And smart organizations are increasingly creating an environment where they don't.

"I've been in places where risk compliance does fall on IT's shoulders," says Michael Statmore, CIO at Post University in Waterbury, Conn., which has 800 on-campus and 16,000 online students. "We have a culture that does understand that we share the risk. It's grown over time, and it's been a concerted effort on my team's part to stress that and really appeal to their common sense."

Statmore uses that shared responsibility to enforce decisions when necessary. "If someone wants to do something and we tell them it might be insecure, they may still want to do it," he says. "But if I ask them, 'Are you prepared to sign your name on the dotted line next to mine for the risk?' then 99 times out of 100, they say, 'No, I am not.'"

GO BEYOND 'NO'

It's easy for busy CIOs and executives under pressure to perform to stand firm in their opposing views over a disputed piece of technology. It's important to avoid giving in to this temptation, and the best approach is to find alternative solutions that solve the business problem without creating a security risk.

At Kendra Scott Jewelry, a jewelry maker with about 200 employees that operates stores in Scottsdale, Ariz., Newport Beach, Calif., and Baton Rouge, principal technology consultant Nathan Toups faced a dilemma when the finance department asked him to block Spotify because its bandwidth use was hampering transmission speeds. But the music service turned out to be highly valued by many Kendra Scott employees. So Toups came up with a solution: He installed a high-speed connection completely separate from the financial system and asked employees to use the new connection for such services as Spotify. The move solved several problems at once, since the company's Web and marketing teams had also been clamoring for additional bandwidth.

Taking a problem-solving approach keeps everyone engaged and talking. When faced with a request from a business team, your initial answer might be no, but you can follow that with "if that's what you want to do, what can we do to make that happen?" Statmore says. "And then we figure it out. It comes from their confidence that the conversation's not going to stop there."

Having that confidence in place is a key to success, says Bart Murphy, CIO at CareWorks, a workers' compensation plan management company in Dublin, Ohio. Murphy has insourced many of CareWorks' formerly outsourced functions and gained a lot of trust from his business colleagues in the process. "We've done a lot from a delivery perspective to get that seat at the table and not be missed on an email or meeting — or honestly, be purposely bypassed because getting IT involved is going to slow down the process," he says. "We move extremely fast. We're fairly responsive, and the business runs IT. If there's a need, the need has to be met." ◆

Zetlin *is a technology writer and co-author of* The Geek Gap: Why Business and Technology Professionals Don't Understand Each Other and Why They Need Each Other to Survive. *Contact her at minda@geekgap.com.*

GET A GRIP ON Mobile Management

Vendors are itching to help IT leaders manage a slew of new devices. How to decide? Consider what's 'good enough' for what you need now, but don't neglect the future. **BY ROBERT L. MITCHELL**

THE RAPID PACE OF INNOVATION in mobile devices and software has made managing it all a moving target, but the proliferation of user-owned devices at work means businesses can't wait to beef up their support infrastructure.

So how do you choose the right tool set, given all the activity? It's not easy: Mobile device management (MDM) software vendors are adding new features every three to six months, on average. Also, as vendors have consolidated — most recently with VMware's acquisition of AirWatch — MDM tools have evolved into enterprise mobile management (EMM) suites, all-purpose Swiss army knives that cover the gamut from device policy controls to application, content, network and service management.

THINKSTOCK

This year is shaping up to be "the year [big vendors] make a run at enterprises that want stability and scale," says Maribel Lopez, principal at Lopez Research. As a result, now is the time to review your EMM strategy — or to develop one if you haven't already.

If you have not done so yet, you're probably not alone. In a 2013 Aberdeen Group survey of 320 IT organizations, 75% of the respondents said that they had bring-your-own-device (BYOD) policies, but half of those respondents said that they were taking an "anything goes" approach to managing the mobile ecosystem — which is to say, little or no management at all. "That's a big concern," says Andrew Borg, who was research director at Aberdeen when the survey was completed. (He is now founder and principal of eC3 Consulting, his own practice.)

Having an MDM that can change the policy of a device as it crosses from one country to another is one of those great features that organizations don't know they need yet.

DANIEL ECKERT, MANAGING DIRECTOR, PWC

As mobility morphs from a peripheral concern to a core IT service, it's inevitable that more organizations will move toward the adoption of EMM software. Here are a few things to think about before making that purchase.

Put Your Current Needs Front and Center

Finding the right EMM tool set depends not only on which one has the most features, but which has the feature sets that best meet your organization's requirements.

"There's no single list of what's important and what's not. It's all about your use case," says Philippe Winthrop, global mobility evangelist at Computer Sciences Corp. "If you have zero interest in supporting [a certain] mobile platform, then it doesn't matter if the EMM has insane capabilities on that platform," he says. So start with the business tasks you're trying to support, figure out what tools and features are required, and drill down from there.

For example, MDM policy controls are a baseline. But do you also need application or content management? If you have a BYOD policy, do you need to support both employees' personal phones and company-owned phones?

Are you using corporate-owned, personally enabled (COPE) phones? These are devices that are owned by the company and can be configured and managed just like BYOD devices, offering containerization or other technologies to separate personal apps and data from the corporate apps and content.

Do your employees travel abroad? If so, a seemingly esoteric feature like geofencing — which enables device management policy changes based on a phone's GPS location — could be key to complying with each country's privacy regulations. "Having an MDM that can change the policy of a device as it crosses from one country to another is one of those great features that organizations don't know they need yet," says Daniel Eckert, managing director in the advisory practice at PricewaterhouseCoopers.

It's also important to understand whose devices you need to manage. Is it just employees, or do you need to include contractors, temporary workers, business partners or even customers?

Then there are the types of devices you need to manage — either now or in the next few years. Yes, most vendors support iOS and Android, but what about Windows Phone and the new Firefox OS? If you think those aren't factors, consider that back in 2009 no one would have anticipated the decline of BlackBerry, Symbian and WebOS — or that Nokia would adopt Windows Phone as its core platform because of an acquisition, says Winthrop.

Another concern: Is the EMM suite extensible enough to support other wireless endpoint devices, such as mobile printers and scanners? "We even had a request for Google Glass," says Eckert. "And I would expect, with wearable smart watches coming down the pike, that we'll see more of those in the enterprise in the next two years."

In other words, "think beyond the smartphone," says Borg. As the Internet of Things evolves, will you be able to manage endpoints of any type, whether they're temperature or seismic sensors? In a fast-moving market, it's hard to know what devices will be popular a year from now, so make sure you hitch your wagon to a vendor that will keep up with new endpoints as they become popular, Borg suggests.

Winthrop concurs. "Buy the tools that allow you to have the flexibility you need to go with the flow," he says.

Versatility in EMM software is key in a world where the mobile operating systems and endpoint devices change every year, says Michael DiSabato, an analyst at Gartner for Technical Professionals. The fluidity of the environment makes the choice of a tool more of a tactical decision than a strategic one, he adds.

Suites Rule

Look for a suite, rather than choosing individual tools in a best-of-breed approach, says Lopez. Administrators don't want eight different tools to manage, which is why the market will continue to consolidate. "You're looking for something that's not amazing at everything but that is great at some things and good enough for the others," she says.

The way some features are delivered — and the level of integration — within a suite can vary. Vendors may have developed most capabilities natively, but many have acquired features through acquisition, or have added them through partnerships. For example, BoxTone relies on Mocana for application containerization, while SAP uses NitroDesk TouchDown as its secure email client. If a suite doesn't offer a desirable feature set natively, make sure the vendor you choose has a good partnering strategy for the capabilities you need, says Lopez.

"A single solution is better for security, providing that the user experience doesn't get trashed in the process," says DiSabato.

But don't be afraid to go best of breed for important capabilities if the suite you're using isn't up to snuff in a key area. "We have one major customer with an MDM solution, but when it comes to mobile application management (MAM) they're looking for best of breed," Winthrop says. "Even though the MDM offering includes MAM capabilities it's not sufficient for their needs."

You can't spend all of your time integrating five or six products, but having one or two is fine, says Lopez, so if you're happy with an existing tool, think about augmenting it. Take security, for instance. "Many regulated industries have Good Technology for secure mobile messaging, but they might want, for example, MobileIron for everything else." Or, she says, if you really need a secure browser you may want a suite that works with Mocana.

One potential drawback about choosing a suite over best-of-breed tools is that some of a suite's features may fall behind competing offerings from smaller, more nimble vendors, says Lopez.

But large vendors such as SAP and IBM are throwing a lot of resources at their EMM suites. And the biggest vendors have another advantage: They can provide enterprise-scale support, integration and even development services.

User Experience Is Paramount

The BYOD trend has put the end user in the driver's seat, so it's vital to get hands-on time with the tools before a full deployment. "The user and the employee are the key arbiters of adoption," says Borg of eC3 Consulting. "Polling your employees about their experiences is increasingly important."

"The only thing that matters is the user experience," says Gartner's DiSabato.

Unfortunately, the MDM policy controls that many businesses have put into place haven't fared well with users. "The number of companies we work with who say the CEO doesn't like the MDM they deployed is in the high 300s — out of over 500 clients," DiSabato says. Things like user self-provisioning and mobile application delivery should be transparent and scalable, he explains.

The number of companies we work with who say the CEO doesn't like the MDM they deployed is in the high 300s — out of over 500 clients.

MICHAEL DISABATO, ANALYST, GARTNER FOR TECHNICAL PROFESSIONALS

Users should be able to bring their own devices to work and have them comply with policy in a way that's not onerous to them, says Borg. And if your organization doesn't have the expertise to build a mobile support team that can rise to the challenge of supporting a full-featured EMM service, there are cloud-based services and managed service providers that can do the job.

In fact, says Eckert, cloud-based EMM is one of the most important considerations for his enterprise clients. The others are flexible pricing structures, integration capabilities and mobile application management features.

User interface design is the next arms race, Borg says. "Users expect solutions to be easy to use, intuitive, and to have basic capabilities supplied through self-service, with help just a push button or call away. It should be as easy to use as Angry Birds."

Converging Endpoint Management

Having a multiplatform strategy means more than making sure an EMM suite supports all flavors of mobile devices and mobile operating systems. While mobile is currently handled as a separate ecosystem from desktops and laptops, the worlds are starting to converge as it becomes a core IT function. Some products already let you manage all mobile and desktop device types from a single management console.

"There never should have been a separate mobile management suite," says Lopez. The traditional management suites missed the boat early on. Now, she says, they're extending those capabilities and pulling mobile back in.

"Eventually, mobile management will cease to be a separate thing in the enterprise IT world," Winthrop says, much in the same way that wireless LANs became just another piece of the network management infrastructure. "You'll see the same with mobility as time progresses."

For larger enterprises, says Borg, "the top-level consideration should be integration across the tools." A single pane of glass, or unified management layer, is a distinct advantage for administrators, but it's also easier for the end users if they have one self-service place to go for all of their endpoint devices. Vendors with that capability include AirWatch, BoxTone, IBM and SAP.

Future-Proofing

While mobile device management is mature, other elements of EMM are still evolving. "Now people are all crazy about mobile application management, but the next thing will be context, and content and data management," Lopez says.

Most enterprises start by controlling the device, and then add secure access to business contacts, calendar and email — along with file sync capabilities — to solve what DiSabato calls "the Dropbox problem."

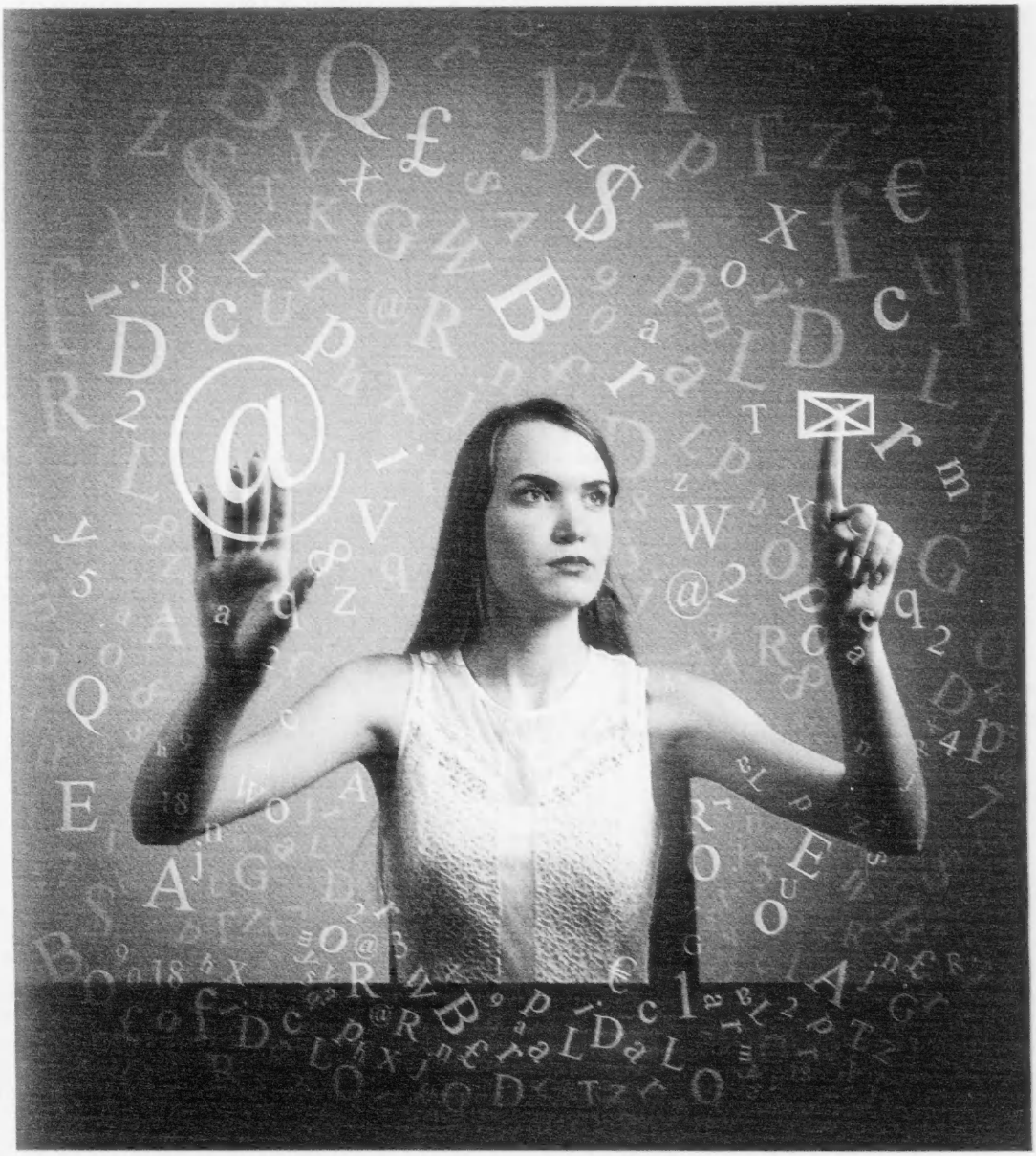
The next step, he says, will be integrating mobile into business process improvement and collaboration. "How do you make a decision without having to go back to the office and fire up an application? That's all rolled into EMM services, and we think over the next year you'll see a huge upsurge in this activity," he says.

Mobility management is gradually moving toward workspace aggregation, where the user will have access to the same resources from any endpoint device. For example, Citrix is attempting to provide virtual access with its ShareFile, XenApp, XenMobile and XenDesktop software, and VMware is taking a similar approach.

The goal, DiSabato says, is to integrate virtualization and the user experience "so that when I write an app in Windows and access it on a server with an iPad, it goes from keyboard-and-mouse-centric to looking like an iOS app. Somewhere between the app and the iPad, a miracle will occur."

But the technology behind workplace aggregation is still evolving, something that companies need to think about before they act. "Implement this now and you'd better have a lot of Maalox handy," DiSabato says.

Given how rapidly mobile technology is moving, Winthrop tells clients to look for a vendor that has the resources and flexibility to adapt quickly to change. The key to choosing the right tool suite, he says, is to standardize on an EMM, but "standardize flexibly." ◆



Big thinkers are urging IT to lead a charge to digitally remake every aspect of their businesses. CIOs aren't so sure.

BY HOWARD BALDWIN

Ready for 'DIGITAL TRANSFORMATION'?

ATTENTION, IT LEADERS: If you haven't yet heard the message that you should be heading up a charge to digitally transform your organization, it's not for lack of trying from the big tech consulting firms.

Accenture and McKinsey are touting "digital business," instructing CIOs to, respectively, create "a comprehensive strategy that leads to new architectures, new services and new platforms" and develop digital skills "not just in marketing and in sales but, increasingly, in operations and across the whole value chain."

PricewaterhouseCoopers is stressing "digital IQ," which it defines as "a measure of how well companies understand the value of technology and weave it into the fabric of their organization."

Gartner's buzzphrase is the "digital industrial economy," a vast confluence of cloud computing, social collaboration, mobile technology and data from the "Internet of Everything."

And not to be outdone Capgemini, in promoting "digital transformation," baldly warns that companies "must succeed in creating transformation through technology, or they'll face destruction at the hands of their competitors that do."

Got all that?

Some IT leaders, like Red Hat CIO Lee Congdon, are already on board. "Just as we made the transition from an agricultural society to an industrial society, we are now making the transition to a digital society," he says. In that context, every company will be a digital company.

Of course, Red Hat is a technology company to begin with. Telling an agribusiness or a manufacturer of power tools to transform itself digitally is a different task. Most organizations have computers, software and networks, and many have automated processes and a mobile workforce — how much more digital can they get?

Lots, says George Westerman, a research scientist at the MIT Center for Digital Business. Digital transformation isn't about computerization, he explains. It's about using technology "to expand the reach and performance of enterprises" — even those that are decidedly analog.

General Electric, for example, is adopting an Internet of Things service strategy that will help customers schedule maintenance and avoid part failures on industrial GE products — an approach that improves GE's own operations.

Westerman includes that example in "Embracing Digital Technology," an MIT research report done in conjunction with Capgemini that cites three potential benefits that could come from going digital: better customer experiences and engagement, streamlined operations, and new lines of business or business models.

Co-author Didier Bonnet, senior vice president and head of global practices for Capgemini, emphasizes that digital transformation goes beyond automation. "It's not just taking people out of the process, it's increasing their effectiveness" within the process, he says. Specialty insurer Chubb, for example, is using "social business tools and processes . . . to develop products and understand risks rapidly as new markets emerge," the report notes.

Just as we made the transition from an agricultural society to an industrial society, **we are now making the transition to a digital society.**

LEE CONGDON, CIO, RED HAT

Digitalization in the Real World

Roger Seshadri was lucky enough to have an experience most CIOs only dream of: Building a fully digital organization from the ground up. Seshadri is the former CIO of Melco Crown Entertainment, a partnership that built a massive gaming and hospitality complex in Macau (he continues to work as an IT consultant for the company). He deployed an IP infrastructure that encompassed every facet of the complex: audio, video, cameras, wireless, mobile and more.

Guests can use an iPad to control the temperature in their room, open the curtains, browse the wine list or find a service. They use kiosks to redeem points on loyalty cards. Using digital gaming systems, dealers can accommodate 120 baccarat players at a time, instead of the usual six at a table. Depending on the time of day, the casino can configure slot machines to accept different amounts with each spin.

Even CIOs without the luxury of starting from scratch with a "greenfield" situation are interested in digital transformation.

To Phil Fasano, CIO at Oakland, Calif.-based healthcare provider Kaiser Permanente, digitalization means applying technology to offer services that simply weren't possible before. His example: allowing patients to interact with a physician via video "rather than taking three hours out of their day to visit a facility" — a capability that's now in the planning stages.

"Every company is already a digital company, even if they don't perceive themselves to be one," Fasano maintains. "People open a mobile device and become a digital consumer. They may even be your own employees. You have to

think about every aspect of what you do through the lens of being digital. Digital offers you the opportunity, like PCs did, to reimagine the work that you do."

Red Hat's Congdon concurs. "Even if you are a traditional company making Sheetrock, you'll be a digital company, because your supply chain, your marketing, your logistics, your product changes, your collaboration, will be digital. You ignore the trend at your peril."

Every company is already a digital company, even if they don't perceive themselves to be one.

PHIL FASANO, CIO, KAISER PERMANENTE

Fully Digital? Not So Fast

Not every IT leader agrees, however. Phil Bertolini, CIO of Oakland County, Mich., which has been highly ranked for providing digital capabilities, believes that every organization will have a digital component, even if it's only email, but being "fully digital" isn't necessary for every entity. "Does a street vendor need a CRM program?" he asks. "They may do online banking, and they may get their business license online, but they don't need a bigger digital footprint than that."

The Capgemini/MIT study divides companies into four quadrants: digirati (also known as digital masters), fashionistas, beginners and conservatives. While Bertolini considers Oakland County to be a digital master, he says some rural governments are still on the bottom part of the quadrant and are likely content to stay there for many years. "They don't have much of a population to serve. They can stay [in the conservative quadrant] because they can still do things with a pencil and paper."

In both the private and public sectors, Bertolini sees a lot of fashionistas, which the study defines as those who have experimented with sexy applications that don't always create value. As the report says, "While [these efforts] may look good, they are not implemented with the vision of gaining synergies among the items."

In other words, "it's wonderful to do something whiz-bang, but if you can't build it [into your existing systems] and make it sustainable, you're a fashionista," Bertolini says.

Pete DeLisi, academic dean of the IT leadership program at Santa Clara University, says digital transformation is at best just one piece of a larger puzzle. The MIT/Capgemini study "shows that digital capabilities correlate with good performance, but what caused those attributes in the first place? Companies that are well managed perform better than those that are not," he argues.

A longtime IT and strategy consultant, DeLisi says digital transformation alone can't make great companies. "You can't control for other variables," he explains. "There could have been strong leadership, great people, strategic capabilities, a strong corporate culture. There's no way you can isolate those things."

Obstacles to Digital Perfection

Likely to no one's surprise, inertia is the No. 1 roadblock to digital transformation. Some 63% of 1,500 corporate workers surveyed by Capgemini/MIT said the pace of technological change in their organizations is too slow. Only about one-third of the respondents said that senior leaders in their organizations have put forth a vision for digital transformation.

Another big obstacle to becoming digital is getting others on board. "When a high-level operations executive doesn't see a return on technology, it's difficult to manage," Seshadri says. "IT has to do a lot of proof of concepts to provide evidence that technology has value."

Other obstacles can crop up in the following areas:

- **Funding.** "It's always better if you have more money," says Fasano. "You just have to be effective at utilizing it. You can only go at the pace you can afford."

Bertolini concurs. "Money may [slow down] how far and how fast you go, but it shouldn't stop you from getting there," he says. "During the tough economic times we had in Michigan, we tightened our belts but still found ways to innovate and invest in technology." For example, he says, a manager could ask a current employee to undertake limited social media efforts without hiring someone new.

- **Staffing.** Ideally, digital transformation should encompass multiple skill sets — cloud, mobile and social to start — not to mention the traditional disciplines of project management and change management. All of which can make staffing a challenge.

"There is a global war for talent, for people who can execute in the digital domain," says Congdon. "You need to think about how to attract people who can help you get to the right level of tech sophistication, especially when you're competing with marquee technology firms like Google and Netflix."

- **Interoperability.** An organization can't be fully digital until all of its systems can communicate with one another — and ideally with those of its business partners as well. Linda Trowbridge is CEO for Center for Elders' Independence, an Oakland, Calif.-based elderly care provider that's investing significantly in an electronic health record system. "It would help if we have access to medical records in the hospital, but we don't," says Trowbridge. "It's not that the technology can't do it. It's that the organizations have not agreed upon a framework."

Change Is the Only Constant

For all his bullishness, even Congdon has some concerns about striving for digital mastery. "It's risky to assume in advance that you know where you want to end up," he says. "You can take [one] approach to solving a problem, but will the problem still be relevant in five years? You may want to make multiple bets."

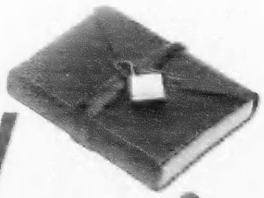
Innovation balanced by caution is not a bad idea. "Sometimes you'll need to be a fast follower," Congdon adds. "If you're constrained because of regulations or resources, it may not make sense to be a pioneer, because the risks will be larger than the rewards."

In charting a course toward digital transformation, then, IT leaders need to remember the business and technology landscape is constantly changing. MIT's Westerman concedes that "digital will mean something different in 10 years."

That means IT pros will have to build the kind of digital infrastructure Seshadri had in Macau with an eye toward both stability and flexibility — two concepts that don't always easily reconcile.

And they'll have to remember this cautionary advice from DeLisi: "Transformation is a means, not an end." ◆

Baldwin *is a Silicon Valley-based freelance writer and frequent contributor to* Computerworld.



Security Manager's Journal

MATHIAS THURMAN

The Heartburn of Heartbleed

Our manager scrambles to find and fix any vulnerable resources after the OpenSSL flaw is discovered.

WHEN IT WAS TIME to write this column, the only thing on my mind was the OpenSSL Heartbleed vulnerability. If you have anything to do with infosec, it was probably dominating your days as well.

If by some chance you haven't heard, a vulnerability was published in early April explaining a way to take advantage of a coding error in the way OpenSSL keeps a session opened. The vulnerability allows for the disclosure of up to 64KB of memory, which may contain data such as user IDs, passwords, secret-key material and other sensitive data that may reside in memory.

Join in the discussions about security! **computerworld.com/blogs/security**

Sometimes when a high-profile security vulnerability is released, I try to gauge the hype against reality. For Heartbleed, I got my hands on exploit code and ran it against some servers that were running a vulnerable version of OpenSSL.

The exploit code was quite easy to compile and run. You simply run the exploit against an IP address and port. If there is any data in memory, the results are displayed. The results were amazing. For one of our internal high-traffic Web servers, I ran the exploit several times before I was able to capture a username, but that was still all the convincing I needed to take action. My priorities at that point were to check on the security of my company's products and services, our internal infrastructure and the many systems we use that are provided by vendors, especially software-as-a-service (SaaS) offerings.

I was relieved to find that our customer service organization was already identifying all of our products that use the vulnerable version of SSL. That team is remediating all products and services, and we have placed an announcement on our support portal so our customers know the status regarding this vulnerability. I will follow up with independent assessment.

Next on the list was our internal infrastructure. This includes routers, switches, firewalls and other network and security devices, as well as internal applications and servers. Our approach here was two-pronged: First, ask each vendor about any known vulnerable products or services. Second, conduct scans of our IP address space.

> **With high-profile security vulnerabilities, I try to gauge the hype against reality.**

Trouble Ticket

» At issue: Heartbleed is a major vulnerability that needs immediate attention.

» Action plan: Set priorities and systematically check everything.

The scanning took quite a while. We wanted to be thorough, so we used Nessus to scan all the ports of every IP address — a total of 65,535 ports.

Finally, we contacted all of our vendors, notably the providers of the 150 or so SaaS applications we use. To speed this process, I gave each in-house application owner an email template for the queries. For immediate peace of mind, I also had my team run a tool, provided by one of the certificate vendors, against all SSL-enabled Web services. The tool indicated whether a site was potentially vulnerable by retrieving certificate information from the server, which included the version of SSL.

What we have found out so far has been interesting, and at times alarming. Many of our network and security vendors have issued statements regarding vulnerable infrastructure we use, and some have already issued patches. Other vendors are still assessing the situation. Scans of our internal infrastructure yielded quite a number of servers that are vulnerable. Interestingly, we discovered that more than 300 resources that run Windows Server are vulnerable. That had us scratching our heads until we realized that it was the Integrated Lights Out board, used for remote server management, that was vulnerable. We are working with the vendor to obtain a patch.

We also discovered some 40 vulnerable servers on our PC network. This was traced to users who were running vulnerable virtual machines on their PCs.

The work continues, and I will provide status reports to our executive staff on a weekly basis until all issues have been remediated. ◆

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

S.J. VAUGHAN-NICHOLS

Windows 8.1 Update 1, Now With Less Annoyance!

The best I can say for Update 1 is it sucks less.

SOME DISASTERS ARE EASY TO SEE COMING. All you had to do was look at Windows 8 and its Metro — excuse me, Modern — interface back in its beta days and you knew it was going to fly like a pigeon with concrete overshoes. Years went by and Windows 8.1 was — better, but still basically awful. Now Windows 8.1 Update 1 is here, and I've been trying it for the past few weeks and, ah, the best I can say is it sucks less.

First, the good news: If you install Windows 8.1 Update 1 on a PC without a touchscreen, it actually boots to the desktop! Since the Modern interface is just an annoyance without touch, this is a nice improvement.

That said, this change reminds me yet again that Modern really is for touch-enabled PCs. It's awful on a traditional desktop. It also reminds me that if I want touch functionality, I want it on a tablet or smartphone, not on a screen where I have to waste time raising my hand from the keyboard to do a job.

Another change: The Modern apps now have title bars and taskbars. This makes them marginally more usable for people who have used Windows for years. But it brings out another Windows 8.x annoyance: The new title bars and taskbars don't look and work quite like their predecessors, the ones you've used for years.

Change for the sake of change, which is how I've always seen Windows 8.x, is not a way for any product to endear itself to people who used earlier versions for decades. Sure, there were jumps from Windows 3.1 to Windows 98 to Windows 2000 to XP to Windows 7, but none of them required you to relearn the entire desktop experience to be productive.

For example, if you're in desktop mode and you click on an image, now you get to view the image in Windows Photo Viewer instead of the Metro Photos app. Yay! But, if you're on the desktop and you double-click a PDF file, Metro Reader opens it up for you. Boo! Is interface consistency really that hard, Microsoft?

Moving along, Internet Explorer 11 still doesn't impress me. Does anyone, by the way, find it more than a little off-putting that security holes keep appearing that affect everything from IE6 to IE11 despite the fact that Microsoft keeps saying that it has improved the security of its browser? On the other hand, IE11 now at least has tabs and an address bar by default again — but why they're at the bottom of the display is totally beyond me.

I'd really hoped to see the Start menu come back in this update. I was disappointed. Instead, all the Start button does is throw you into the Modern interface. Again, this is never, ever where I want to be. It now appears — and, oh, how we hope! — that we'll get a "new" (read, "old-style") Start menu in August or September.

What's a devoted Windows user to do? Well, if you're already on Windows 8, you poor devil, you should go ahead and "upgrade" to Windows 8.1 as fast as possible. After all, it's not like Microsoft is going to give you any choice in the matter. If you're on Windows 7, stick with it. If you're using anything older, move to Windows 7.

If you're not so devoted and want to try living outside the Microsoft world, I recommend Chromebooks or Linux distributions with a Windows XP-like look and feel, such as Linux Mint with Cinnamon.

Steven J. Vaughan-Nichols has been writing about technology and the business of technology since CP/M-80 was cutting-edge and 300bps was a fast Internet connection — and we liked it! He can be reached at sjvn@vna1.com.

Career Watch

Q&A

David Martin & Kathy Quinn

The co-founders of business-growth consulting firm Growth Vault discuss **how IT can be influential** *within a business.*

Is IT seen as influential within the enterprise?

DM: It depends on the organization. If it's a technology company, then absolutely. Otherwise, IT historically has not been as influential as other areas that are more closely tied to revenues, like marketing and sales. However, given how ubiquitous technology is today, a company that is not being influenced by IT is likely to be at a competitive disadvantage.

It is almost impossible today to have smooth and high-quality interactions with customers, to run a company's internal operations, to communicate effectively within the company or to access important information to make good business decisions unless technology is advanced. Technology is at the core of any company's customer strategy, operations and execution strategy, sales strategy, financial strategy, etc. No company can run effectively without technology capabilities that lead or match its core business capabilities.

KQ: IT can build influence in organizations. We've seen this happen for a couple of reasons. The first is that IT leadership has done a good job linking the business strategy with IT. There's a recognition that successful execution of the business strategy depends on fabulous IT capabilities and execution. When that happens, IT isn't just a cost center. It can become a strategic advantage to better execution.

The second instance is when customer interactions are facilitated by technology. If purchasing and customer service interactions almost always have an electronic option, IT shines in a better light.

What's the best way for IT leaders to become more influential within the business?

DM: This is simple: Be a business leader who happens to be an expert in IT, not an IT expert who happens to work in a business. Focus on the important business results you can help your company produce, accelerate and improve. Show how IT's work accelerates the execution of core business strategies.

KQ: Technology leaders can get so geeked out by *how* they do what they do that other business leaders think they don't understand what matters. They make themselves outcasts who don't get invited to participate in the business-critical conversations. Your peers don't care nearly as much as you do about the latest technology release or the way your team is structured.

Just how influential can IT be?

DM: Look at ING Direct. It was founded as a direct bank – no branches – so technology was a core part of its business strategy, not just a support function. It used technology as one of its competitive advantages to greatly differentiate itself from competitors. In fact, much of its fast growth was a result of attracting a technology-savvy clientele away from traditional banks.

Other banks viewed technology as a tool to help them accomplish their core banking work of accepting, holding and distributing funds, many times through face-to-face interactions with customers. ING Direct viewed technology as a source of competitive advantage. So IT can be very influential and really drive a company's success.

– *Jamie Eckle*

5 Pointers for **Résumés That Resonate**

Some of the latest trends in résumé writing are especially relevant for IT professionals. Suzana Simic, director of career development at the Computer Systems Institute, offers these five tips.

1

Create a video résumé. Technology is ever-changing. Show your next employer that you are in the know.

2

Brand your talents. Link to an online portfolio of your professional achievements, your tech-related blogs or any posted writing samples.

3

Don't bury your certifications. IT professionals who not only know technology but also have the certifications to back that up should make sure prospective employers know about them.

4

Don't come off as a techie's techie. Employers may seek your tech skills, but they want soft skills to come along with them. Talk about how you have worked collaboratively and helped achieve company goals.

5

Showcase your achievements. A lot of résumés list skill after skill but don't give a sense of what the individual has done with them. Don't be shy about explaining how your expertise in technology has resulted in revenue gains or cost reductions.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 Attn: D. Racheria. Please reference job # below:
Software Engineer (Cambridge, MA) Design, develop, modify, and/or test software needed for various Google projects. Exp. Incl: #1615.6869: comp arch; op syst; algorithms; multi-threaded program; comp graphics; Java; Objective-C or C++; & Python.

Data Engineer Consultants: MStaff, Chicago IL: Travel required to unanticipated client locations throughout the US. Think Big Analytics, Inc. c/o recruiting@thinkbiganalytics.com Ref: Job 951

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Software Engineer in Test (Kirkland, WA) Design, develop, modify, and/or test software needed for various Google projects. Exp. Incl: #1615.8620 automation dvlpmnt for testing; Java, C++, or C#; perf test dev; & back-end and srvr testing. Trvl req'd.

Nisum Technologies, has multiple openings for the following positions at its office in Brea, CA.
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BlackBerry Corporation, San Diego, CA, position is available: CA7089 - Radio Protocol Developer
Mail resume specifying job title, Requisition #CA7089 and academic transcripts to BlackBerry Corporation, P.O. Box 141394, Irving, TX, 75014-1394 U.S.A.

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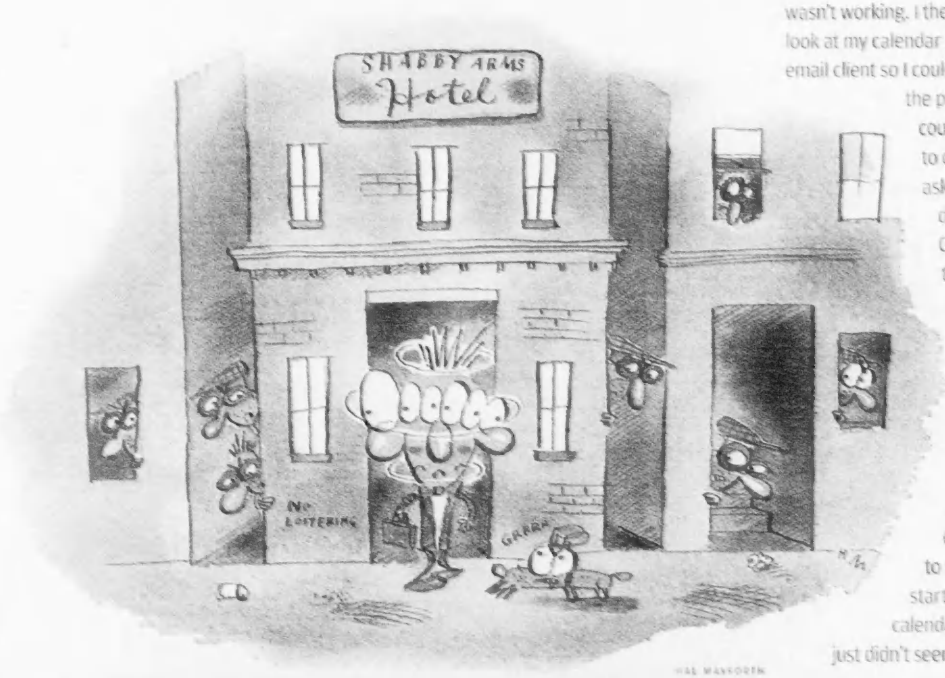
SHARKTANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY



HAL MAYFORTH

That's Not Helping!

Company is opening a new office and this pilot fish gets the nod to fly down in a few weeks to set up the network and phones. "During the kickoff meeting, the new office manager makes a point of saying that the office is not in a good location," says fish. "And that they aren't planning on bringing clients there, for security reasons. And that the office door will remain locked with a security camera so the receptionist can see who she is letting in. Upon hearing this, I am a little nervous about flying down, but I forget about it until the time comes to book flights, car and hotel reservations. I check in again with the office manager to find out what hotel is closest to the office so I can book a room there. On the phone, the office manager tells me he'll find one where the likelihood of getting mugged is the least!"

We Put the *Work* in Workaround

IT consultant pilot fish is managing a big project for a utility company, and every two weeks his team holds a workshop to demo the state of the work. "There are many, many attendees, some traveling from as far as an hour and a half away, so it's important everything goes as smoothly as possible," says fish. "In preparing for a recent demo, I was having problems with my email client; it wouldn't allow me to change the start time of the meeting. So I called our help desk. The tech couldn't figure out what the problem was. He tried to connect remotely to my laptop so I could show them, but his software wasn't working. I then suggested he look at my calendar through his own email client so I could demonstrate the problem, but he couldn't get his email to open. Finally, I asked what I should do. His suggestion: Call everyone to tell them the new start time. As in, call dozens of people over the phone. When I described the amount of work that would entail as opposed to simply moving the start time using my calendar within email, he just didn't seem to understand."

The Scenic Route

This hospital group has migrated to a cloud network to connect its sites, but after a few months it's clear some file transfers are taking more than 10 times longer than they should between sites in Wyoming and Colorado. "I called my counterpart in Colorado and he said, 'No problem here; must be your end,'" reports a pilot fish digging into the problem. "The WAN manager said it must be on my end, as his lines were fine." Fish finally tracks the delay to the link between two specific routers and sends his findings to the WAN manager, who's able to correct the problem after all. Sighs fish, "Instead of routing directly from Wyoming to Colorado, we'd been routed through a maze in south Texas."

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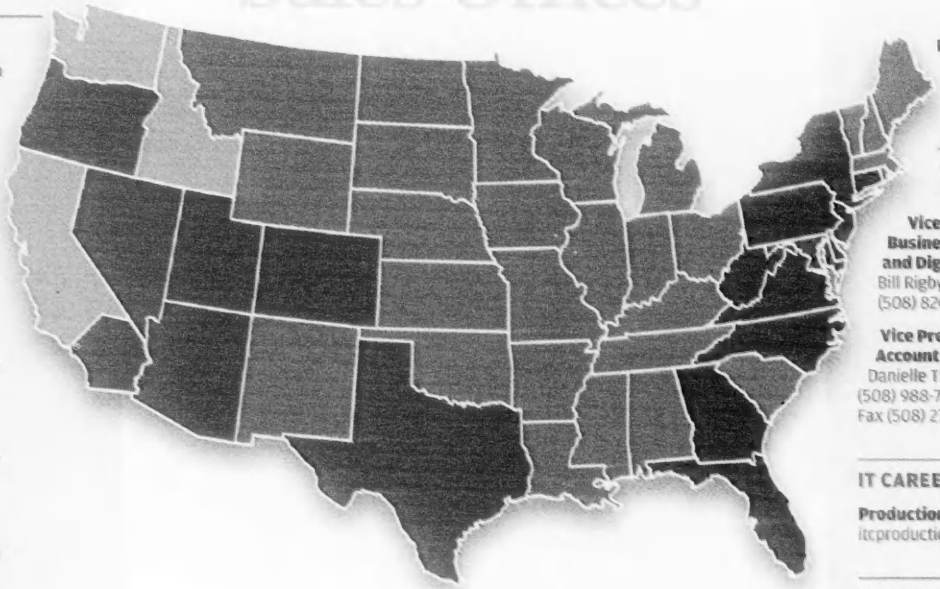

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JONNY EVANS

The Technology World's Sexism Needs to End

The technology industry's institutionalized sexism helps perpetuate unacceptable behavior.

THE TECHNOLOGY INDUSTRY IS SEXIST, and it will take years before endemic discrimination in our workplaces dissolves.

In fact, it might take decades. A 2011 Deloitte report cites Catalyst's then-CEO Ilene H. Lang, who suggests that, when it comes to the imbalance on corporate boards, "it could take [until 2075] for women to reach parity with men" if progress continues at its current pace.

Think about what that means. A 21-year-old woman graduating from college this month wouldn't see women and men occupying an equal number of seats on corporate boards until she's 82.

Lang was talking about all industries. For the tech industry, the situation is worse. A 2013 Fenwick & West survey revealed that 43.3% of the top 150 Silicon Valley companies had no female directors, and 40% had just one. There's a bit more parity in the economy as a whole: Of Standard & Poor's top 100 U.S. companies, only 2% have no women on their boards and just 13% have only one.

And the problem isn't restricted to the boardroom. In the 2012 U.S. workforce, women held 57% of the jobs in all professional occupations, but only 26% of the jobs in professional computing occupations.

This institutionalized sexism helps perpetuate unacceptable behavior. Look at the brouhaha around a couple of hacks deemed misogynistic at TechCrunch Disrupt last year. Those things can only happen when guys are used to being surrounded by nothing but guys. And when they do happen, they draw protest only because tech isn't really an all-male arena; it just feels that way sometimes.

Addressing the problem is complicated. GoDaddy is working with the Anita Borg Institute to encourage better female representation in technology. And about one-third of the people on GoDaddy's leadership team are women. But don't let the irony hit you over the head: This is the same GoDaddy whose suggestive ads often feature scantily clad "chicks."

Legislation could help: Look at what Title IX did for women in sports. If the Employment Non-Discrimination Act became law, it would prohibit companies with 15 or more employees from discriminating on the basis of sexual orientation or gender. It has languished in Congress for years.

Part of the problem is that even people who see fighting prejudice on the basis of race, gender or sexuality as worthy of support tend to agree when they hear ENDA opponents say there's no real discrimination these days. They tell themselves, "It's 2014; surely there isn't a problem anymore?"

It is 2014. And there is still a problem. Particularly in IT.

It would also help if powerful people woke up to the problem. Apple's Tim Cook recently added his name to the push against prejudice. "The House should mark the 50th anniversary of the Civil Rights Act by passing ENDA," he wrote on Twitter.

Meanwhile, many ambitious women, in a quest for self-fulfillment, have become entrepreneurs. The number of women starting small businesses in the U.S. is growing at twice the rate at which small businesses as a general category are growing, according to Deloitte. What are these talented female minds doing? They're saving the economy while the menfolk play with Google Glass.

Is the trend of women turning to entrepreneurship our best shot at finally eliminating IT's sexism problem? It doesn't have to be; we all must help create an environment in which women can gain the equality that's been denied them. ◆

Jonny Evans is an independent journalist and blogger. He writes *Computerworld.com*'s AppleHolic blog and won an Azbee Award in 2010.

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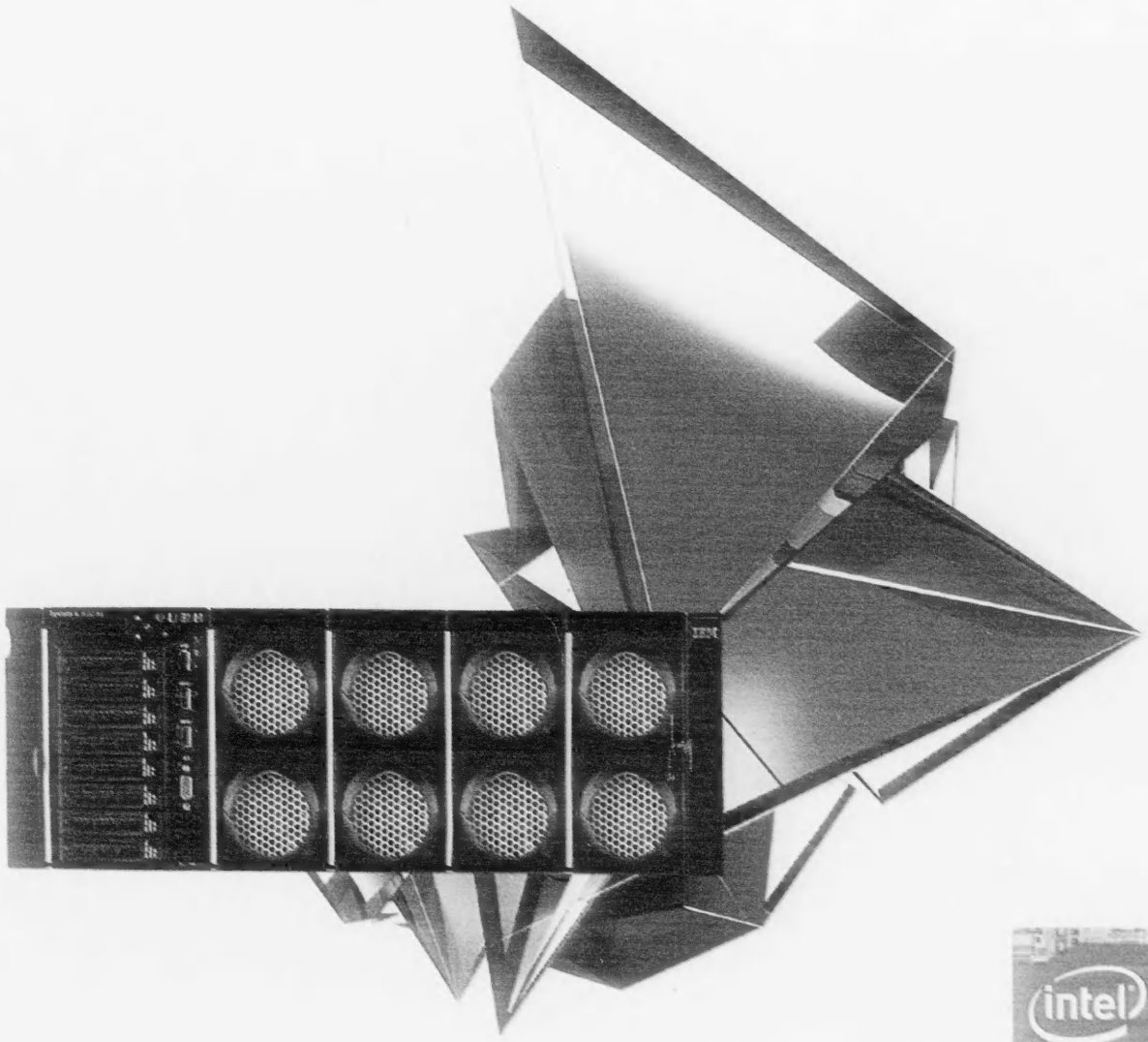

[1]Based on preliminary IBM testing of x3850 X6 with PCI-E based flash storage achieving write latency of 15µs and DIMM-based flash storage achieving 10µs write latency. These preliminary results are subject to change.